IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Richardson et al. Docket No.: LSI.94US01(03-2049)

Application No.: 10/783,785 Examiner: Aurangzeb Hassan

Filed: February 20, 2004 Group Art Unit: 2182

For: ENCLOSURE SLOT IDENTIFICATION BY MODULES

Mail Stop Appeal Brief - Patents
Commissioner for Patents
Alexandria, VA 22313-1450

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Sir:

In response to the Notification of Non-Compliant Appeal Brief in the above-identified patent application dated July 12, 2007, kindly enter the attached Substitute Appeal Brief.

Applicants have added new Appendix B as an Evidence Appendix as requested by the Examiner, and renamed the Related Proceedings Appendix as Appendix C. No new matter has been added by these changes.

Applicants respectfully request that the Appeals Process be resumed in a timely manner.

Dated this 6th day of August 2007.

Respectfully submitted,

Samuel M. Freund
Reg. No. 30,459
Cochran Freund & Young LLC
2026 Caribou Drive, Suite 201
Fort Collins, CO 80525
Phone: (970) 492-1100
Fax: (970) 492-1101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Richardson et al. Docket No.: LSI.94US01 (03-2049)

Application No.: 10/783,785 Examiner: Aurangzeb Hassan

Filed: February 20, 2004 Group Art Unit: 2182

For: ENCLOSURE SLOT IDENTIFICATION BY MODULES

Mail Stop Appeal Brief - Patents
Commissioner for Patents
Alexandria, VA 22313-1450

SUBSTITUTE APPEAL BRIEF

Sir:

Applicant has filed a timely Notice of Appeal on March 23, 2007 from an Office Action by the Examiner, dated October 23, 2006, finally rejecting claims 1-18 in the above identified patent application. This Appeal Brief is being filed under the provisions of 37 C.F.R. §40.37 in response to the Notice of Panel Decision from Pre-Appeal Brief Review dated May 04, 2007.

REAL PARTY IN INTEREST

The real party in interest in this application is LSI Logic Corporation, having an address at 1621 Barber Lane, Milpitas, California 95035.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF THE CLAIMS

Claims 1-18 were originally filed in the present patent application. Claims 1 and 12 were amended by Amendment A dated August 04, 2006, and claims 1-18 are currently pending in the patent application and are on appeal.

Claims 12–17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330).

Claims 1-10 stand rejected under 35 U.S. C. 103(a) as being unpatentable over Ninomiya in view of Lee (U.S. Patent No. 5,748,912).

Claims 11 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee, and further in view of Pope et al. (U.S. Patent No. 4,781,066).

STATUS OF AMENDMENTS

Amendment A, the last amendment filed in this patent application on August 4, 2006, has been entered.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Briefly, the present invention includes an apparatus and method for enabling a circuit board or data storage module, as examples, located within a slot or bin in an enclosure to determine the identification of the slot by detecting a characteristic feature of the slot. In this manner the circuit board or data storage module can operate in accordance with the function of that slot. This is particularly important when a plurality of slots or enclosure locations contain identical modules having different functions.

Independent claims 1 and 12 were amended in Amendment A. Claim 1 recites an apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with the enclosure, including in combination: means located within the enclosure for displaying an identifying characteristic of the slot; means disposed on the circuit board for detecting the characteristic; and a processor disposed on the circuit board for interpreting the detected characteristic and for directing the circuit board to perform the function associated therewith. FIGURE 1B, page 3, lines 4-11, and page 4, beginning on line 18, and ending on page 5, line 7, of

the subject specification, as originally filed, describe the apparatus of claim 1. The term CRU is defined on page 2, lines 12-13 of the subject Specification.

Claim 12 recites a method for determining the function of a circuit board disposed in a slot in an enclosure, including the steps of: displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot. FIGURE 1B, page 3, lines 12-17, and page 4, beginning on line 18, to page 5, line 7, of the subject specification, as originally filed, describe the method of claim 12. The term CRU is defined on page 2, lines 12-13 of the subject Specification.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for appeal are whether claims 12–17 are patentable under 35 U.S.C. 102(b) over Ninomiya (U.S. Patent No. 5,809,330), whether claims 1-10 are patentable under 35 U.S. C. 103(a) over Ninomiya in view of Lee (U.S. Patent No. 5,748,912), and whether claims 11 and 18 are patentable under 35 U.S.C. 103(a) over Ninomiya in view of Lee and further in view of Pope et al. (U.S. Patent No. 4,781,066).

ARGUMENT

In the subject Office Action dated October 23, 2006, made final, the Examiner rejected claims 12–17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), since the Examiner stated that as per claim 12 Ninomiya teaches a method for determining the function of a circuit board disposed in a slot in an enclosure comprising the steps of: displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot.

The Examiner noted that the determination of the function of a circuit board is not limited to one step of the photo-sensor detecting presence of an inserted option card. Once a card is inserted the apparatus of Ninomiya, the Examiner proffered, photo-sensors in conjunction with photo-emitters generate card detection signals DTE1 and

DTE2. Upon generation of the DTE signals, the Examiner continued, the process corresponds with address decoders that receive and decode the I/O address supplied to the system and the characteristics can be matched and further can be configured via the I/O address map to determine the characteristic functionality of the option card. The Examiner asserted that the originally cited photo-sensor represents the detection step of an entire process of determining the characteristics and Ninomiya teaches the entire analogous process.

The Examiner continued rejecting dependent claims 13-17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya. Since appellants believe that independent claim 12 is patentable over Ninomiya, for the reasons to be set forth hereinbelow, appellants believe that no further comment is deemed necessary for claims 13-17 which depend therefrom.

Claims 1-10 were rejected under 35 U.S. C. 103(a) as being unpatentable over Ninomiya in view of Lee (U.S. Patent No. 5,748,912), since the Examiner asserted that as per claim 1, Ninomiya teaches an apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure which comprises in combination: (a) means located within said enclosure for displaying an identifying characteristic of the slot; (b) means disposed on said circuit board for detecting the characteristic; and (c) a processor for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith. The Examiner continued that Ninomiya does not disclose a processor disposed on said circuit board, but that Lee analogously teaches an option card with a processor disposed on said circuit board, and concluded that it would have been obvious to one of ordinary skill in the art at the time of appellants' invention to insert the option card of Lee into the option card slot of Ninomiya, and that one of ordinary skill in the art would be motivated to make such modifications in order to allow for an efficient and flexible means for users to replace a processor in a unit without exorbitant costs.

The Examiner then rejected dependent claims 2-9 over Ninomiya modified by the teachings of Lee as applied to claim 1. Claims 11 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee and further in view of Pope et al. (U.S. Patent No. 4,781,066), since the Examiner stated that Ninomiya

modified by the teachings of Lee as applied in claim 1 fails to teach an apparatus wherein the means disposed on the circuit board for detecting the characteristic of the slot comprises a Hall-effect apparatus, whereas Pope et al. teaches a Hall-effect apparatus. The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Ninomiya and Lee with the teachings of Pope et al. in order to have a detection system that permits enhanced sensitivity and noise immunity in the system.

Turning now to the rejection of claims 12–17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), appellants wish to point out that the purpose of the invention of Ninomiya is described in Col. 1, lines 36-48, wherein it is stated that: "However, in order to correctly set the jumpers or dip switches, it must be determined whether the I/O address area is already in use by I/O devices such as various types of peripheral LSI controllers built into the portable computer, or by a different option card already connected to an expansion connector. This operation is extremely difficult for a user. If the option card's I/O address area is mistakenly set using the jumpers or dip switches to an I/O address area that overlaps with an I/O address area already in use either by an internal I/O device in the portable computer or by a different option card, the portable computer will malfunction." The invention of Ninomiya is described in Col. 2, lines 5-20 as follows: "It is therefore an object of the present invention to secure operation of the entire system, including option cards, regardless of the values set for the I/O address areas of said option cards. This invention was designed with this point in mind, and is intended to provide a computer system in which even if the user sets the option card's I/O address area to a value overlapping with the I/O address of an internal I/O device in the portable computer, the proper operation of the entire system, including the option card, may be secured, and in which normal operation of the computer system is possible regardless of the set value of the I/O address area for the option card."

In Col. 2, lines 56 to Col. 3, line 10, Ninomiya continues that: "If the I/O address area requested by an expansion device such as an option card connected to the expansion connector is the same as the first I/O address area, the request for access to the internal I/O device is also received by the expansion device. Consequently, a state

of contention occurs for access to the internal I/O device and access to the expansion device, as a result of which the internal I/O device cannot be accessed normally. On the other hand, if the I/O address area requested by the expansion device is different from the first I/O address area, the internal I/O device may be accessed normally. Therefore, by determining whether or not the internal I/O device was accessed normally, it may be determined whether the internal I/O device address area overlaps with the expansion device address area. If it is determined that the I/O address areas overlap, the address area assigned to the internal I/O device is automatically changed to a second I/O address area different from the first I/O area. In this way, the I/O address area for the expansion device may be prevented from overlapping with the I/O address area for the internal I/O device no matter what value to which the I/O address area requested by the expansion device is set."

Further, Col. 7, lines 46-56, if Ninomiya state: "The expansion unit 2 contains a connector **27**, expansion slots including expansion connectors **28** and **29**, as well as photosensors **30** and **31** to determine the presence of a card. The connector **27** has a configuration and pin placement scheme enabling it to connect to the expansion connector **26**. Various types of expansion devices are detachably connected to each of a number of expansion units **28** and **29** belonging to the expansion unit 2. Expansion devices include modem cards, sound cards, graphics adapter cards, SCSI interface cards, multiple I/O cards and other types of ISA Option cards, as well as PCMCIA-type IC cards." In Col. 8, lines 4-19, of Ninomiya it is stated that: "The photosensor **30** is a card detection device that detects whether option card **32** is connected to the expansion connector **28**, and is located in the card insertion path of the expansion slot. As shown in the drawing, the photosensor **30** has two protrusions, one side of which is equipped with a photoemitter and the other side of which, facing the first, is equipped with a photoreceptor. When an option card **32** is connected to the expansion connector **28**, the passage of light in the space between these two protrusions, that is, the space between the photoemitter and the photoreceptor, is obstructed by the insertion of the option card **32**. In this event the photosensor **30** generates a card detection signal DTE1 indicating that the option card **32** was inserted in the expansion slot. The card detection signal DTE1 is sent to the system controller **12** via the connectors **27** and **26**,

and a flag indicating the insertion of a card is thereupon set in a prescribed status register in the system controller **12**." Column 8, lines 27-41, of Ninomiya state: "Card detection devices employing photosensors (light permeable type or reflective type) as shown in this embodiment are most desirable from the standpoint of accuracy of detection, in terms of such points as reliability, durability and efficiency of space utilization, but card insertion may also be detected by means of a microswitch, for example, or through detection of a change in voltage to certain pins of the expansion connector. The option cards **32** and **33** have address decoders that receive and decode the I/O addresses supplied from the system, determine whether these I/O addresses are the I/O addresses they requested, and said cards operate when it is determined that these I/O addresses are the I/O addresses they requested."

As an example of the present invention, by contrast, identical modules or cards capable of having different functions may be used in different slots of an enclosure, such as a storage array enclosure. Among the reasons for using identical modules are cost savings, and a reduction in the error rate associated with introducing an incorrect module into a bin which appears to be identical to other slots. Such modules are referred to as customer replaceable units (CRUs), In order that a particular module operate in accordance with its desired function within a group of modules, the module must "know" the identity of the slot in which it has been placed. Once its location is identified, pre-programmed circuitry in the module can perform properly, and the card or module may function as directed by its particular slot location.

Beginning on line 18 and ending on page 5, line 7 of the subject Specification, as originally filed, it is stated that: "In accordance with one embodiment of the present invention, each slot in an enclosure that houses multiple CRUs has a set of mechanical tabs arranged in a binary fashion. The binary representation for each slot in an enclosure is chosen such that when a CRU is placed in the slot a sensing apparatus determines the configuration of the tabs and reports the configuration to circuits or processors located on the CRU that determine the function of the CRU from this information. Thus, each CRU can identify its unique slot location within the enclosure. If a chosen CRU is moved to another location, it identifies the new location based on the mechanical binary configuration of the new slot. In this manner, CRUs can be removed

for service operations such as repair or upgrading, and replacement CRUs can be inserted into the same slot with certainty of their function within the overall system. A variety of sensors may be used to determine the presence or absence of a mechanical tab, including micro switches, Hall-effect devices, or LED sensors, or a combination of these or other devices. The number of tabs is determined by the number of slot locations to be uniquely identified."

Subject claim 12 recites in part: "... displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot." Clearly, claim 12 requires that the circuit board detect and interpret the displayed identity of the slot, and perform the function associated with that slot. The computer or controller already "knows" the address of the slot of the present invention since this information has already been determined for the particular slot, and the problem addressed by Ninomiya, that of conflicting addresses, is not present. Moreover, the function of the expansion card of Ninomiya is already determined by expansion card and not the slot into which it is inserted.

Further, subject claim 1 recites in part: "An apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure, which comprises in combination: "... (a) means located within said enclosure for displaying an identifying characteristic of the slot; (b) means disposed on said circuit board for detecting the characteristic; and (c) a processor disposed on said circuit board for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith."

Thus, the present claimed invention teaches and claims a system and method which provides the identity of the slot into which a module (CRU) is inserted. The prescribed function of that particular slot is then "known" to the module, and the module is directed to perform the function associated with the slot. That is, once the CRU "knows" in which slot it has been placed, preprogrammed circuitry in the module is directed to perform in accordance with the function of the slot as mandated by its

identity. A module or circuit board may therefore perform a variety of functions depending on which slot it is inserted.

Appellants respectfully believe that the Examiner has misinterpreted the word "determine" in subject claims 1 and 12. In the present patent application, "determine" clearly means to define or direct or select the function of the module. This is most emphatically stated in the final recitation of both subject claims 1 and 12: "...directing said circuit board to perform the function associated therewith.", or "... directing the circuit board to perform the function associated with the interpreted characteristic of the slot.", respectively. The American Heritage Dictionary of The English Language, Third Edition, defines "determine" as: "... 4. To be the cause of; regulate ... 5. To give direction to ... 6. To limit in scope or extent. 7. *Mathematics.* To fix or define the position, form , or configuration of. ... .", and "direct" as: "1. To manage or conduct the affairs of; regulate. ... 4. To cause to move toward a goal; aim. ... ."

Ninomiya does not teach an apparatus or method for determining the function of a circuit board dependant on the identity of the slot in which it is disposed, as is recited in both of subject independent claims 1 and 12. That is, Ninomiya does not teach that the system of Ninomiya can define the function of a card inserted into a slot. Rather, the function of a particular module or circuit board of Ninomiya is the same, predetermined function or factory determined function, independent of the slot into which it is inserted in accordance with the teachings of Ninomiya.

In the Abstract, Ninomiya states: "Among devices on the system board, all devices other than those devices essential to the operation of the system such as system timer **19** and real-time clock **20**, i.e., I/O devices **24** and **25**, are constructed such that their environment may be configured and changed. If the hardware resources allocated to I/O devices **24** and **25**, such as I/O address areas, interrupt levels, etc., overlap with the hardware resources requested by option cards **32** or **33**, the hardware resources allocated to I/O devices **24** and **25** are automatically changed. As a result, the internal I/O devices and option boards can always be made to operate normally, regardless of the values set for the I/O address areas, etc. for option cards **32** and **33**." Thus, the invention of Ninomiya does not alter the function or operation of the option

cards; rather, the addresses thereof may be changed in order to permit the portable computer of Ninomiya to function properly.

Therefore, appellants respectfully believe that Ninomiya does not anticipate the subject claimed invention.

Lee does not teach an option card in FIG. 2B, as suggested by the Examiner; rather, Lee teaches a replaceable, user-removable CPU card, as stated in the Abstract: "A user-removable CPU card includes a microprocessor and a bus bridge memory controller that allows the use of the microprocessor as a central processing unit of an electrical device (e.g. notebook PC or desktop PC). ... Inclusion of a central processing unit of a computing device on a user-removable CPU card allows easy replacement of the CPU, for example, by simply opening a door and operating an eject mechanism, without disassembly of the housing. Therefore, a user can upgrade to a new central processing unit by simply ejecting a previously inserted user-removable CPU card and inserting a new user-removable CPU card, as easily as switching diskettes in the prior art (except for powering up the electrical device after such switching)." Appellants therefore fail to understand the Examiner's having combined Lee with Ninomiya.

Pope et al. in Col. 6, lines 36-40, states: "Processing of the pulse-like signals from the Hall Effect element **79** would be substantially the same as described for the processing of the pulse-like signals form the light detector element **49** of the first embodiment of the invention." Further, the Abstract of Pope et al. states: "Linear sensing apparatus for a positive displacement meter includes relative to each piston of the meter, an elongated rectangular member rigidly attached at one end to the top face of its associated piston, and carrying at its other end a multiwindowed member that reciprocates back and forth with movement of the piston for alternately interrupting detectable energy flowing between energy transmitting and detecting devices, the detecting device converting the detected energy into alternating electrical signals analogous to the volume of fluid passed through the meter, whereas the signals are processed via a microprocessor for obtaining the actual volume and/or price of the fluid passed through the meter over a given period of time." The present invention does not teach pulse-like signals for measuring fluid flow; rather, a module is inserted into a slot of an enclosure and remains there during a period of use, generating thereby a constant

signal. Therefore, appellants fail to understand the Examiner's having combined Pope et al. with Ninomiya in view of Lee.

Further, Ninomiya teaches away from determining or selecting or defining the function of the module as is recited in subject claims 1 and 12 since Ninomiya in Col. 7, lines 46-56, recited hereinabove, specifies expansion devices having predetermined functions. As a result, the Examiner has improperly combined Ninomiya with either Lee and/or Pope et al. in a rejection under 35 U.S.C. 103(a) (See, e.g., Article 2145, Section X. D. of the Manual of Patent Examining Procedure.). Therefore, appellants respectfully believe that the Examiner has failed to provide a *prima facie* case for obviousness as is required in a rejection under 35 U.S.C. 103(a).

Additionally, since appellants believe that independent claims 1 and 12 are patentable over Ninomiya under 35 U.S.C. 102(a), and over Ninomiya in view of Lee under 35 U.S.C. 103(a), for the reasons to be set forth hereinabove, appellants believe that no further response is necessary for dependent claims 2-9, 11, and 18.

CONCLUSION

In view of the foregoing, appellants submit that claims 1-18 are allowable, and respectfully request that the rejection of claims 1-18 by the Examiner be reversed by the Board.

COCHRAN FREUND & YOUNG LLC

Dated this 6th day of August 2007:

By: Samuel M. Freund

Samuel M. Freund
Reg. No. 30,459
2026 Caribou Drive, Suite 201
Fort Collins, Colorado 80525
Phone: (970) 492-1100
Fax: (970) 492-1101
Customer No.: 27479

APPENDIX A

Listing of Claims

1. An apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure, which comprises in combination:

(a) means located within said enclosure for displaying an identifying characteristic of the slot;

(b) means disposed on said circuit board for detecting the characteristic; and

(c) a processor disposed on said circuit board for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith.

2. The apparatus as described in claim 1, wherein said means located within said enclosure for displaying a characteristic of the slot comprises means for generating at least one signal, and at least one tab disposed within the interior of the slot capable of substantially reducing the at least one signal.

3. The apparatus as described in claim 2, wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises means for detecting the at least one signal.

4. The apparatus as described in claim 3, wherein said means for generating at least one signal comprises a source of light, and wherein said means for detecting the characteristic of the slot comprises at least one light detector adapted for detecting light generated from said source of light.

5. The apparatus as described in claim 4, wherein said at least one tab is disposed in a pattern characteristic of the slot, and said at least one light detector, reproduces the pattern characteristic of the slot.

6. The apparatus as described in claim 5, wherein the light generated from said source of light is substantially reduced by said at least one tab when said at least one tab is disposed between said source of light and said at least one light detector.

7. The apparatus as described in claim 5, wherein said at least one source of light comprises at least one light emitting diode and said at least one light detector comprises a charge-coupled detector.

8. The apparatus as described in claim 1, wherein said means displaying a characteristic of the slot comprises at least one source of light; and said means for detecting the characteristic of said slot comprises at least one light detector adapted for detecting light generated by said at least one source of light, whereby the pattern characteristic of the slot is reproduced by said at least one light detector.

9. The apparatus as described in claim 8, wherein said source of light comprises at least one light emitting diode and said at least one light detector comprises a charge-coupled detector.

10. The apparatus as described in claim 1, wherein said means for detecting the characteristic of the slot comprises at least one microswitch in electrical communication with said processor, and said means for displaying a characteristic of the slot comprises at least one projection positioned on a wall of said enclosure disposed in a pattern characteristic of the slot and adapted to actuate one of said at least one microswitch when said circuit board is inserted into the slot, such that the characteristic of the slot is sensed by said at least one microswitch.

11. The apparatus as described in claim 1, wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises a Hall-effect apparatus.

12. A method for determining the function of a circuit board disposed in a slot in an enclosure, comprising the steps of:

displaying an identifying characteristic of the slot inside of the enclosure;
detecting the displayed characteristic on the circuit board;
interpreting the detected characteristic on the circuit board; and
directing the circuit board to perform the function associated with the interpreted characteristic of the slot.

13. The method as described in claim 12, wherein said step of displaying a characteristic of the slot comprises generating at least one signal and blocking the at least one signal in a pattern characteristic of the slot.

14. The method as described in claim 13, wherein said step of detecting the characteristic of the slot comprises detecting the at least one signal on the circuit board.

15. The method as described in claim 12, wherein said step of generating at least one signal is achieved using a source of light, said step of blocking the at least one signal is achieved using tabs disposed within the slot in a pattern characteristic of the slot, and said step of detecting the at least one signal is achieved using a light detector disposed on the circuit board.

16. The method as described in claim 12, wherein said step of displaying a characteristic of the slot is achieved using at least one source of light; and said step of detecting the characteristic of the slot is achieved using at least one light detector disposed on the circuit board and adapted for detecting light generated by said at least one source of light, whereby the pattern characteristic of the slot is reproduced by the at least one light detector.

17. The method as described in claim 12, wherein said step of detecting the characteristic of the slot is achieved using at least one microswitch and said step of displaying a characteristic of the slot is achieved using at least one projection positioned within the slot in a pattern characteristic of the slot and adapted to actuate one of the at

least one microswitch when the circuit board is inserted into the slot, such that the characteristic of the slot is detected by the at least one microswitch.

18. The method as described in claim 12, wherein said step of detecting the characteristic of the slot is achieved using a Hall-effect apparatus.

APPENDIX B

Evidence Appendix

Not applicable.

APPENDIX C

Related Proceedings Appendix

There are no related proceedings.